Mobility in Context 3rd edition Johansson Test Bank

SKU: 9781719642866-TEST-BANK

Chapter 2: The Mechanics of Movement

Multiple Choice

1. Which of the following BEST describes center of mass (CoM)*?*
    A. The balance point of an object
    B. The direction of movement when weight is added
    C. The point directly behind the gravity pull
    D. The push or pull that modifies movement

2. Which of the following statements is true regarding how CoM affects patients' movement?
    A. *Center of pull* is another term for CoM.
    B. Each body part, such as a leg or an arm, has its own CoM.
    C. The whole body has a CoM that cannot be localized.
    D. When weight is added to the body, the CoM moves away from the added weight.

3. Which of the following is an example of an internal force commonly used when assisting patients with movement?
    A. Ankle weights
    B. Friction
    C. Gravity
    D. Muscular tension

4. Which of the following statements regarding vectors and representation of movement forces is true?
    A. For internal forces, the tail of the arrow lies at the muscle attachment on the moving lever of the muscle exerting the force.
    B. Gravity is only depicted as a vertical arrow with the tail of the arrow originating behind a point at about S2.
    C. Muscle contraction force is depicted with an arrow pointing opposite to the combined effect of the muscle fibers.
    D. The arrow on the vector is straight and points in the direction away from force exertion.

5. Which of the following is considered an open chain exercise?
    A. Mini squats
    B. Push-ups
    C. Sit-to-stand
    D. Biceps curls

6. Which of the following force-couple applications is LESS than optimal for patients to use when preparing to transition from sitting to standing?
    A. Leaning forward and pulling up with both arms supported on the walker
    B. Leaning forward and using the hip and thigh muscles to achieve liftoff
    C. Pushing the upper trunk into the back of the chair while sliding the pelvis forward

Copyright © 2022 by F. A. Davis Company

Mobility in Context 3rd edition Johansson Test Bank

D. Shifting from side to side to walk the hips forward to the front of the chair

7. What is the MOST likely cause for a patient to develop atrophy while on a ventilator in the intensive care unit (ICU)?
    A. The appropriate amount of load applied to the tissues
    B. Too little load applied to the tissues
    C. Too much load applied to the tissues
    D. Repeated rapid load to the tissues

8. When transferring a patient from the edge of the bed to a wheelchair using a stand-pivot transfer, which of the following positions is MOST appropriate for the caregiver?
    A. Close to the patient with feet close together and with hips and knees bent
    B. Feet spread apart with hips and knees straight while leaning the trunk backwards
    C. Close to the patient with feet spread apart and staggered with hips and knees bent
    D. Feet spread apart and staggered with hips and knees bent while leaning the trunk backwards

9. Which of the following would be MOST effective in promoting stability during patient-care activities?
    A. Increase the distance of the CoM above the base of support (BoS).
    B. Minimize the BoS.
    C. Position the line of gravity (LoG) posterior to the BoS.
    D. Position the LoG near the center of the BoS.

10. Which of the following factors is key to preserving dynamic trunk stability?
    A. A neutral pelvis
    B. Decreased or reduced lumbar lordosis
    C. Extension of the hips
    D. Flexion of the spine

11. Your patient has been in bed for the past 7 days with acute pneumonia. When a patient is preparing to stand for the first time since being hospitalized, which of the following muscle actions must occur?
    A. The back extensor muscles must be able to counteract inertia.
    B. The hip extensor muscles must be able to control the LoG.
    C. The knee extensor muscles must be able to counteract gravity.
    D. The knee flexor muscles must be able to control the CoM.

12. To understand the fundamental principles of movement, it is MOST important to know which of the following?
    A. The amount of ground reaction force in Newtons
    B. The direction of force application
    C. The distance between the CoM and the BoS
    D. The exact measure of inertia to be overcome

Copyright © 2022 by F. A. Davis Company

Mobility in Context 3rd edition Johansson Test Bank

13. In which of the following scenarios is momentum MOST likely to be an element that needs to be controlled?
    A. A patient is bridging in the bed to scoot to the right.
    B. A patient is rolling from his back to his right side.
    C. A patient is transferring from the floor to standing using a chair for support.
    D. A patient is walking with crutches and a full leg cast.

Matching

Match the following terms to their definitions.
A. Pulling that tries to stretch or lengthen tissue
B. The amount of force across a given area
C. The force applied to a given area
D. Twisting force about a structure's axis
E. Two opposite direction forces, parallel to contacting surfaces

14. Pressure
15. Shear
16. Stress
17. Tension/tensile forces
18. Torsion

ANSWERS

1. **ANS: A** Rationale: CoM is the balance point of an object.
2. **ANS: B** Rationale: Each body part has its own CoM. The body's CoM is anterior to S2. When weight is added to the body, the CoM moves toward, not away from, the added weight.
3. **ANS: D** Rationale: Muscular tension is the only option that is an internal force. The other options are external forces.
4. **ANS: A** Rationale: For internal forces, the tail of the arrow lies at the attachment of the muscle exerting the force. When depicting gravity, the arrow tail is at the CoM of the object being affected; S2 is not the only point of origin. To depict muscle contraction force, the arrow points in the same direction as the combined effect of the muscle. The arrow on the vector points in the direction in which the force is exerted.
5. **ANS: D** Rationale: Open kinetic chain exercises are when the distal segment is free to move in relation to the proximal chain. When performing mini squats and sit-to-stand, the distal lower extremity is fixed to the ground. When performing push-ups, the distal segment of the upper extremity is fixed to the ground. When performing biceps curls, the distal upper extremity is free to move.
6. **ANS: C** Rationale: Pushing the upper trunk into the back of the chair while sliding the pelvis forward actually results in an increased moment arm and therefore requires more muscle force to bring the trunk forward into flexion. Leaning forward and pulling up with both arms supported on a walker does not describe a typical force couple. Leaning forward and using the hip and thigh muscles to achieve liftoff is an effective force couple. Shifting from side to side to "walk" the hips forward to the front of the chair is an effective, though less frequently used, method of moving forward.

Copyright © 2022 by F. A. Davis Company

Mobility in Context 3rd edition Johansson Test Bank

7. **ANS: B** Rationale: Atrophy is a sign of inadequate load to the tissues.
8. **ANS: C** Rationale: When initiating a stand-pivot transfer, the caregiver should have a wide BoS with the CoM low and over the BoS. The distance between the caregiver and patient is decreased as much as possible while allowing the necessary movement.
9. **ANS: D** Rationale: The LoG should be near the center of the BoS. You want to decrease the distance between the CoM and the BoS, not increase it. You want the BoS in a greater, not a smaller, area.
10. **ANS: A** Rationale: A neutral pelvis is considered to be the safe or neutral zone for the lumbar spine. The other options do not refer to dynamic trunk stabilization techniques.
11. **ANS: C** Rationale: The knee extensor muscles are the primary movers in the effort to counteract the pull of gravity. Although the back extensors are working, they are not primarily counteracting inertia. Likewise, the hip extensors and knee flexors are active, but not necessarily to control the LoG or CoM.
12. **ANS: B** Rationale: Knowing the direction of force application helps to make clinical judgments related to patient movement.
13. **ANS: D** Rationale: A patient walking with crutches and a full leg cast is the most likely scenario in which momentum forces need to be controlled. The forward swing of the involved leg generates momentum. The added weight of the cast increases the forward momentum. If uncontrolled, the momentum will pull the patient forward beyond their BoS, causing a fall.
14. **ANS: D**
15. **ANS: A**
16. **ANS: C**
17. **ANS: E**
18. **ANS: B**

Copyright © 2022 by F. A. Davis Company

Mobility in Context 3rd edition Johansson Test Bank